REMARKS

Claims 1-3, 5-11, and 13-20 remain for consideration. Claims 1, 6, 11, and 16 are amended. Support for the amendments may be found throughout the instant specification at, for example, paragraphs [0047], [0067]-[0072] and FIG. 7. All remaining claims are thought to be allowable over the cited art.

35 U.S.C. § 101

Claims 11 and 13-20 are rejected under 35 U.S.C. § 101 as not falling within one of the four statutory categories of invention.

In the rejection, the Examiner cites the May 15, 2008, memorandum issued by Deputy Commissioner for Patent Examining Policy, John J. Love, entitled "Clarification of 'Processes' under 35 USC § 101" (the "Memo"), which clarifies that a statutory process under §101 must (1) be tied to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as an article or material) to a different state or thing. (See page 2 of the Office Action). The Examiner suggests that Applicants' Claims 11 and 13-20 do not conform to either of items (1) or (2). Applicants respectfully disagree.

Applicants submit, for example, that Claims 11 and 16 each set forth a method that *inter alia* modifies an original shape of a pulse into a modified pulse that exhibits zero crossings at bit edges within a sequence of bit periods. As such, Claims 11 and 16 transform underlying subject matter, i.e., a pulse, to a different state or thing, i.e., a modified pulse, in conformance with §101 as clarified by item (2) of the Memo.

While the Examiner may not consider such a transformation to be within a class of processes contemplated by §101, the U.S. Supreme Court does. In particular, the U.S. Supreme Court has recognized that the transformation test of the Memo's item (2) is not necessarily fixed or permanent and may evolve with technological advances. (See *Gottschalk v. Benson*, 409 U.S. 63, 71 (1972), as cited by footnote (2) of the Memo). Thus, the transformation of a pulse to a modified pulse, as set forth in Applicants' Claims 11 and 16, falls within a class of processes contemplated by §101. Since Claims 13-15 and 17-20 depend from Claims 11 and 16, respectively, Claims 13-15 and 17-20 also fall within one of the four statutory categories of invention as

specified in §101. Applicants respectfully request, therefore, that the rejection of Claims 11 and 13-20 be withdrawn.

35 U.S.C. § 103

Claims 1, 2, 7 and 9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,956,917 to Lenosky in view of U.S. Patent No. 5,430,768 to Minuhin et al (hereinafter "Minuhin") and further in view of U.S. Patent No. 5,889,827 to Bottomley et al (hereinafter "Bottomley"). Applicants respectfully traverse the rejection, but have nevertheless amended Claim 1 in order to advance prosecution.

For example, Claim 1 is amended to at least set forth a Bit-Edge Zero Forcing Equalizer (BE-ZFE) that includes a filter that "is enabled to modify an original shape of a pulse ... to enhance detection of the pulse's original data value from the modified pulse." That is to say, in other words, that detection of the original data value of a pulse is enhanced by modifying the pulse from, e.g., the rectangular pulse to be transmitted, as exemplified in FIG. 7 of the instant application, to a BE-ZFE modified pulse, as exemplified by the modified pulse to be transmitted of FIG. 7.

The teachings of Lenosky and Minuhin, on the other hand, set forth an opposite process that instead modifies a received pulse to more closely resemble the original data pulse in order to enhance detection. Lenosky teaches, for example, that the "equalizer 210 receives the input signal s(t) as its input, equalizes the signal, and outputs the equalized output signal 220, which is substantially similar to the originally-transmitted signal r(t)." (See column 5 lines 28-31). The teachings of Lenosky, therefore, are in direct contradistinction to Applicants' Claim 1 at least because Lenosky's equalizer seeks to modify a received pulse to more closely resemble the original pulse, whereas the equalizer of Applicants' Claim 1 instead modifies the pulse away from the pulse's original shape.

Similarly, filter 64 of Minuhin "[minimizes] the sum of squares of the difference between actual sample values of the signal issuing from the filter 64 and ideal values for the samples as determined by the partial response wave form to which signals induced in the R/W head 54 are filtered." (See column 15, lines 42-46). The filter of

Minuhin, therefore, seeks also to modify the data values that are read from R/W head 54 to more closely resemble data values that were written to R/W head 54, which is in direct contradistinction to Applicants' Claim 1.

Bottomley teaches the use of transmission filters to modify the transmitted pulse shapes so as to facilitate channel estimation. (See column 4, lines 57-59). Bottomley, however, does not teach that the original data values are then detected from the modified pulses. Rather, Bottomley requires that the modified pulses must first be filtered by a matching receive filter before detection can occur. (See column 6, lines 45-46). The teachings of Bottomley are, therefore, in direct contradistinction to Applicants' Claim 1 at least because an additional filtering step is required to presumably remove the effects of the transmission pulse shaping before detection can occur, whereas Applicants' Claim 1 requires modification of the original pulse shape in order to enhance detection of the pulse's original data value from the modified pulse shape.

For all of the reasons stated above, Applicants respectfully submit that Claim 1 patentably distinguishes over Lenosky, Minuhin, and Bottomley either singularly, or in combination, and is, therefore, in condition for allowance.

Dependent Claims 2, 7, and 9, which are dependent from independent Claim 1, are also rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Lenosky, Minuhin, and Bottomley. While Applicants do not acquiesce to any particular rejections of these dependent claims, it is believed that these rejections are now moot in view of the amendments and remarks made in connection with independent Claim 1. These dependent claims include all of the limitations of the base claim and any intervening claims, and recite additional features which further distinguish these claims from the cited references. Therefore, dependent Claims 2, 7, and 9 are also allowable over the combination of Lenosky, Minuhin, and Bottomley.

Claims 11, 13, and 18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Lenosky in view of Minuhin and further in view of page 189 of "Digital Communication" by Edward A. Lee and David G. Messerschmitt (hereinafter "NPL"). Applicants respectfully traverse the rejection, but have nevertheless amended Claims 11 and 16 in order to advance prosecution.

For example, Claims 11 and 16 are similarly amended, as discussed above in relation to Claim 1, to at least set forth a method for performing equalization that includes "modifying an original shape of a pulse ... to enhance detection of the pulse's original data value from the modified pulse." As discussed above, however, the teachings of Lenosky and Minuhin set forth an opposite process that instead modifies a received pulse to more closely resemble the original data pulse in order to enhance detection. NPL has not been shown to remedy the deficiencies of the combination of Lenosky and Minuhin with respect to Claims 11 and 16. As such, Applicants' Claims 11 and 16 patentably distinguish over the combination of Lenosky, Minuhin, and NPL and are in condition for allowance.

Dependent Claims 13 and 18, which are dependent from independent Claims 11 and 16, respectively, are also rejected under 35 U.S.C. §103(a) as being unpatentable over the combination of Lenosky, Minuhin, and NPL. While Applicants do not acquiesce to any particular rejections of these dependent claims, it is believed that these rejections are now moot in view of the amendments and remarks made in connection with independent Claims 11 and 16. These dependent claims include all of the limitations of the base claims and any intervening claims, and recite additional features which further distinguish these claims from the cited references. Therefore, dependent Claims 13 and 18 are also allowable over the combination of Lenosky, Minuhin, and NPL.

Each rejection of Applicant's Claims 3, 5, 8, 10, 14-17, and 19-20 as sustained by the Office Action, is supported by various combinations of the teachings of Lenosky and Minuhin by themselves or with other references. Namely: on page 10 of the Office Action, Claim 3 is rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of Bottomley and further in view of U.S. Patent No. 5,249,150 to Gruber; on page 11 of the Office Action, Claim 14 is rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of NPL and Gruber; on page 12 of the Office Action, Claim 5 is rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of Bottomley and further in view of U.S. Patent No. 4,852,169 to Veeneman et al (hereinafter "Veeneman"); on page 13 of the Office Action, Claim 8 is

rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of Bottomley and further in view of U.S. Patent Publication No. 2007/0183540 A1 to Agazzi et al (hereinafter "Agazzi"); on page 14 of the Office Action, Claim 15 is rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of NPL and Veeneman; on page 14 of the Office Action, Claim 10 is rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of Bottomley and further in view of U.S. Patent No. 3,876,941 to Kohlenberg et al (hereinafter "Kohlenberg"); on page 15 of the Office Action, Claims 16-17 and 19 are rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin; and on page 17 of the Office Action, Claim 20 is rejected under 35 U.S.C. § 103(a) as being made obvious by the teachings of Lenosky and Minuhin in view of Gruber.

The teachings of each reference stated above, however, have not been shown to remedy the deficiencies of the combination of Lenosky and Minuhin as noted above with respect to Applicant's Claims 1, 11, and 16. As such, Claims 1, 11, and 16 patentably distinguish over the combination of Lenosky, Minuhin, and the other references stated above. Since Claims 3, 5, 8, 10, 14-17, and 19-20 depend from Claims 1, 11, and 16, respectively, then Claims 3, 5, 8, 10, 14-17, and 19-20 also patentably distinguish over the combination of Lenosky, Minuhin, and the other references stated above and are in condition for allowance for at least the same reasons stated above in relation to Claims 1, 11, and 16.

It is noted that no rejection of Claim 6 is advanced by the Office Action. Applicants respectfully request that the Examiner present some reasons as to why Claim 6 is rejected as indicated in the Office Action Summary. Without this information, the Applicants are deprived of the opportunity to address the Examiner's position or otherwise advance the application. For purposes of the present response, Applicants maintain the allowability of Claim 6 in the absence of any Examiner's remarks otherwise.

CONCLUSION

Reconsideration and a notice of allowance are respectfully requested in view of the amendments and remarks presented above. If the Examiner has any questions or concerns, a telephone call to the undersigned is invited.

Respectfully submitted,

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I hereby certify that this correspondence is being filed via EFS-Web with the United States Patent and Trademark Office on February 11, 2009.

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